



# ESTABLISH RWY 7 ROLLOUT RVR PHASE I BARROW, ALASKA FOR CONSTRUCTION

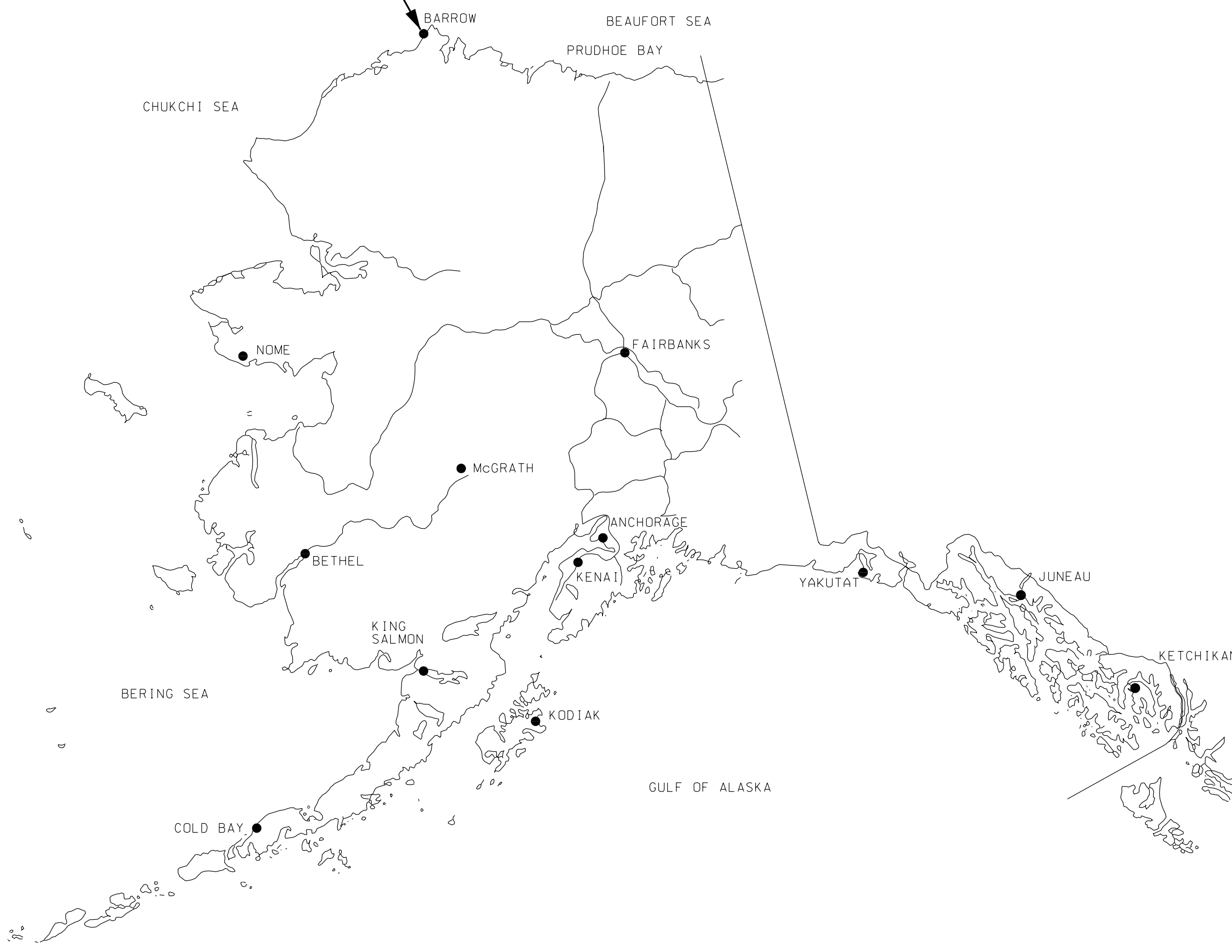
## PHASE I SCOPE

INCLUDES, BUT IS NOT LIMITED TO, CONSTRUCTION OF RVR PAD, RVR RACK FOUNDATION, DISTRIBUTION RACK, DISTRIBUTION RACK PAD AND FOUNDATION, ALL TRENCHES AND CONDUIT, PULLING OF WIRE (AS INDICATED), AND CONNECTING POWER TO FAA TRANSFORMER.

THE RVR SENSORS AND POLE, RVR RACK, AND OTHER RVR EQUIPMENT WILL BE INSTALLED AS PART OF PHASE II.



## WILEY POST/WILL ROGERS AIRPORT



## PROJECT DRAWINGS:

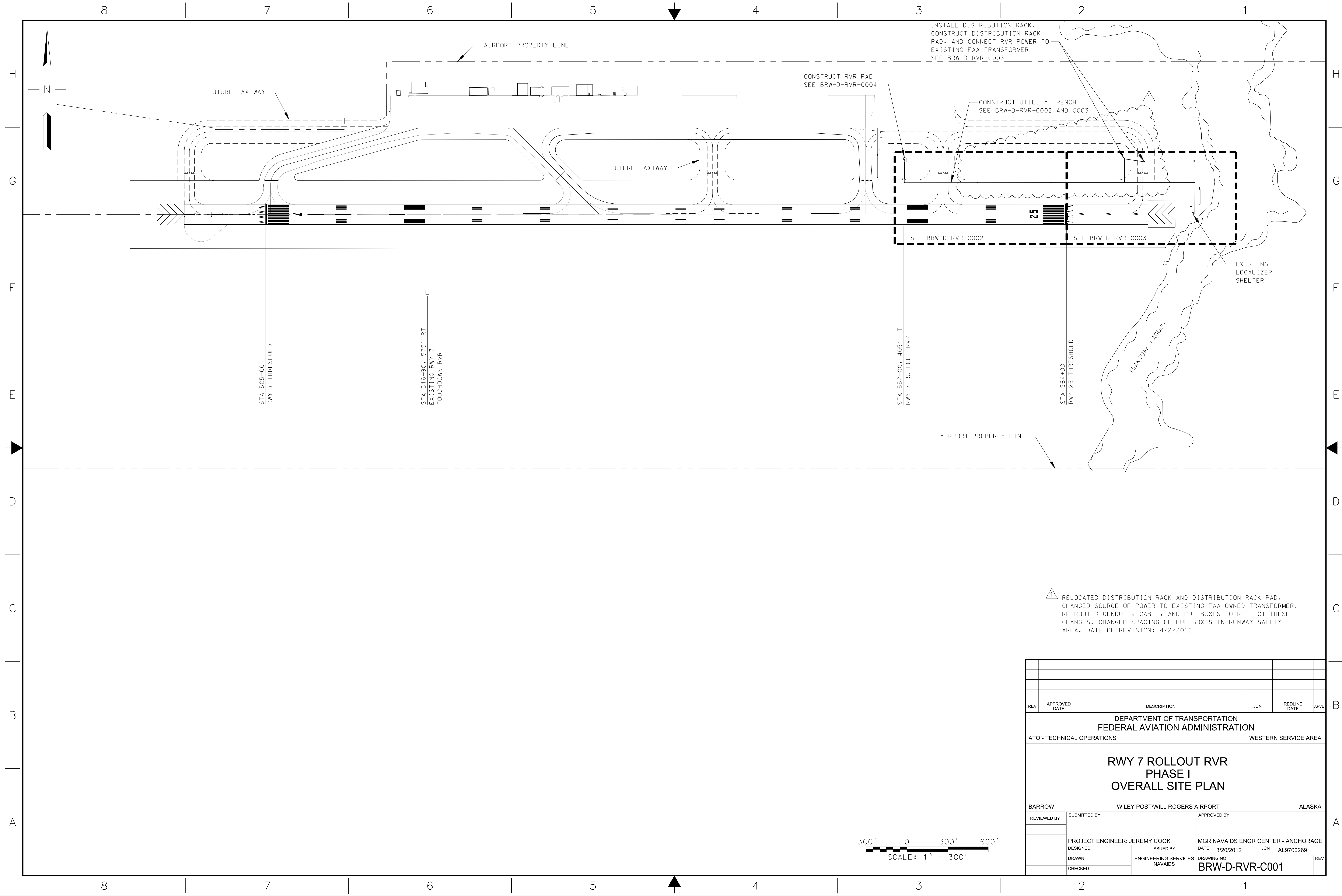
G001	COVER SHEET
R001	REAL ESTATE DATA
C001	OVERALL SITE PLAN
C002	UTILITY TRENCH PLAN
C003	UTILITY TRENCH PLAN
C004	ACCESS ROAD AND RVR PAD
C005	RVR RACK FOUNDATION
C006	DISTRIBUTION RACK PAD AND FOUNDATION
E001	DISTRIBUTION RACK
E002	ONE-LINE DIAGRAM



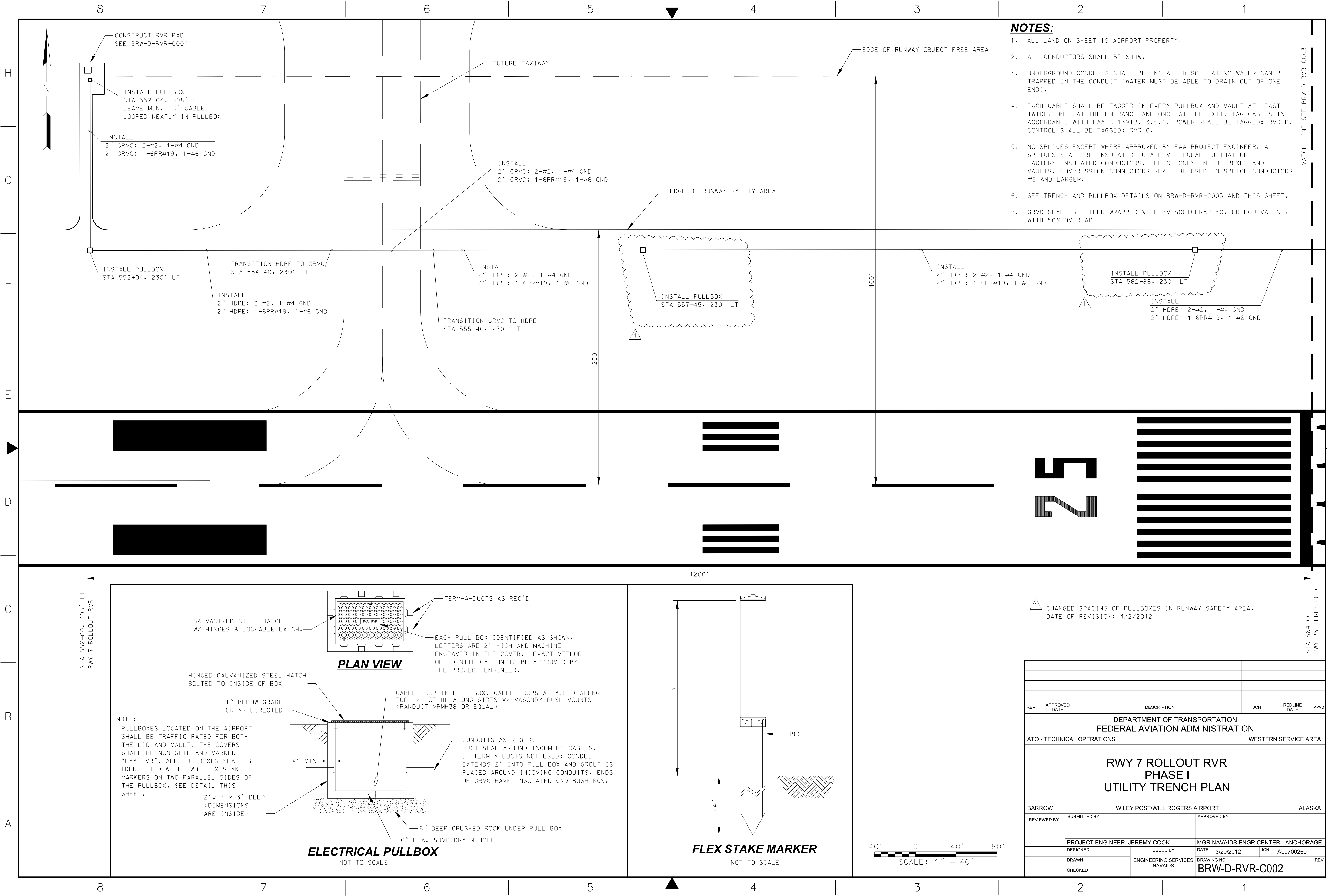
CHANGED SOURCE OF POWER TO EXISTING FAA-OWNED TRANSFORMER.  
DATE OF REVISION: 4/2/2012

REV	APPROVED DATE	DESCRIPTION	JCN	REDLINE DATE	APVD
DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION ATO - TECHNICAL OPERATIONS WESTERN SERVICE AREA					
RWY 7 ROLLOUT RVR PHASE I COVER SHEET					
BARROW		WILEY POST/WILL ROGERS AIRPORT		ALASKA	
REVIEWED BY	SUBMITTED BY	APPROVED BY			
		PROJECT ENGINEER: JEREMY COOK			
		DESIGNED	ISSUED BY	MGR NAVAIDS ENGR CENTER - ANCHORAGE	
		DRAWN	ENGINEERING SERVICES	DATE 3/20/2012	JCN AL9700269
		CHECKED	NAVAIDS	DRAWING NO	REV
				BRW-D-RVR-G001	

REV	APPROVED DATE	DESCRIPTION				JCN	REDLINE DATE	APVD																																																													
<div>DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION</div> <div>ATO - TECHNICAL OPERATIONS<span>WESTERN SERVICE AREA</span></div> <div>RWY 7 ROLLOUT RVR PHASE I REAL ESTATE DATA</div> <div>BARROW<span>WILEY POST/WILL ROGERS AIRPORT</span><span>ALASKA</span></div> <div><table><tr><td>REVIEWED BY:</td><td colspan="4">SUBMITTED BY</td><td colspan="5">APPROVED BY</td></tr><tr><td></td><td colspan="4"></td><td colspan="5"></td></tr><tr><td></td><td colspan="4">PROJECT ENGINEER: JEREMY COOK</td><td colspan="5">MGR NAVAIDS ENGR CENTER - ANCHORAGE</td></tr><tr><td></td><td>DESIGNED</td><td colspan="3">ISSUED BY</td><td>DATE</td><td>3/20/2012</td><td>JCN</td><td>AL9700269</td><td>REV</td></tr><tr><td></td><td>DRAWN</td><td colspan="3">ENGINEERING SERVICES NAVAIDS</td><td colspan="2">DRAWING NO</td><td colspan="3"></td></tr><tr><td></td><td>CHECKED</td><td colspan="3"></td><td colspan="2">BRW-D-RVR-R001</td><td colspan="3"></td></tr></table></div>										REVIEWED BY:	SUBMITTED BY				APPROVED BY																PROJECT ENGINEER: JEREMY COOK				MGR NAVAIDS ENGR CENTER - ANCHORAGE						DESIGNED	ISSUED BY			DATE	3/20/2012	JCN	AL9700269	REV		DRAWN	ENGINEERING SERVICES NAVAIDS			DRAWING NO						CHECKED				BRW-D-RVR-R001				
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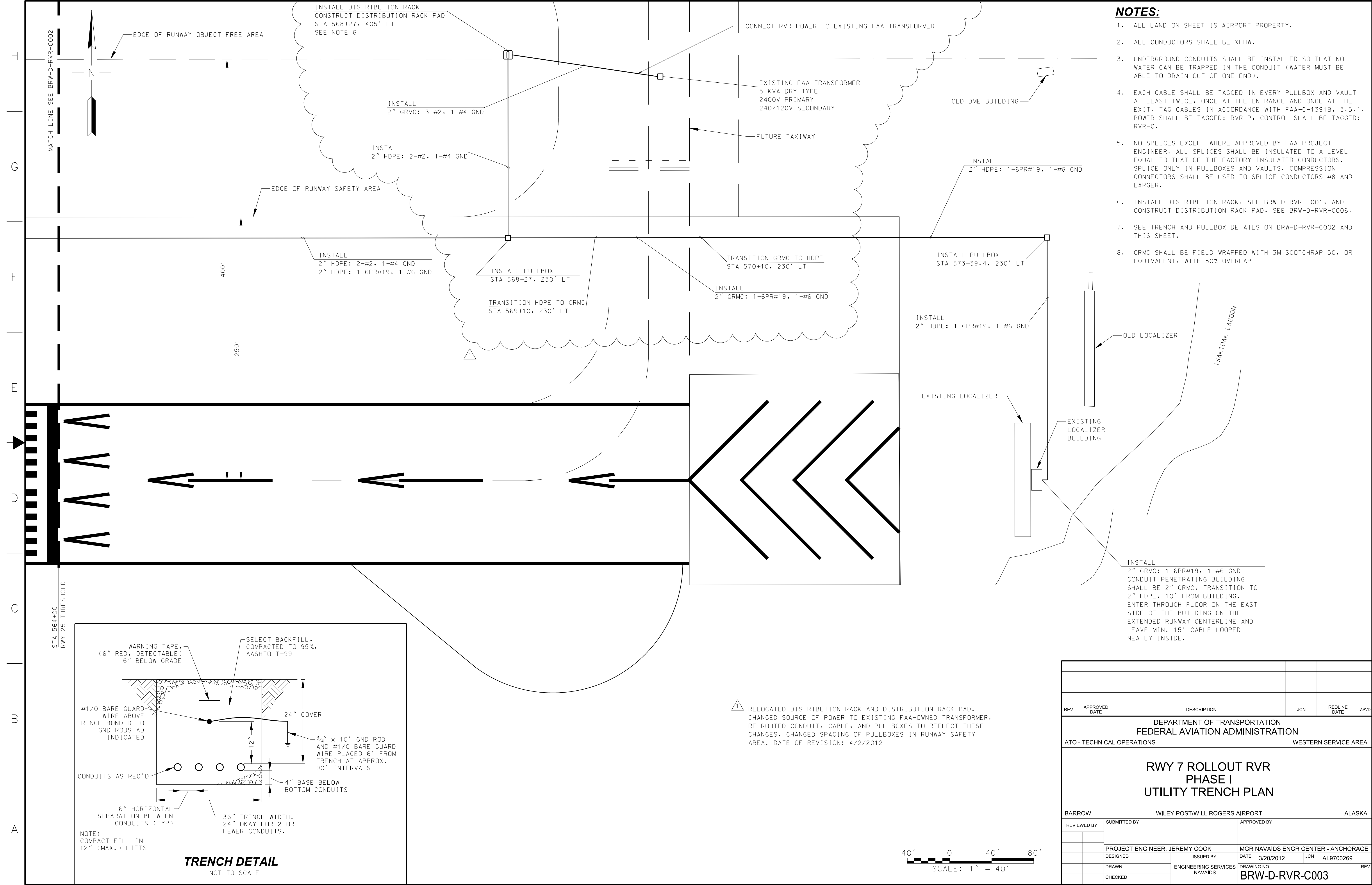


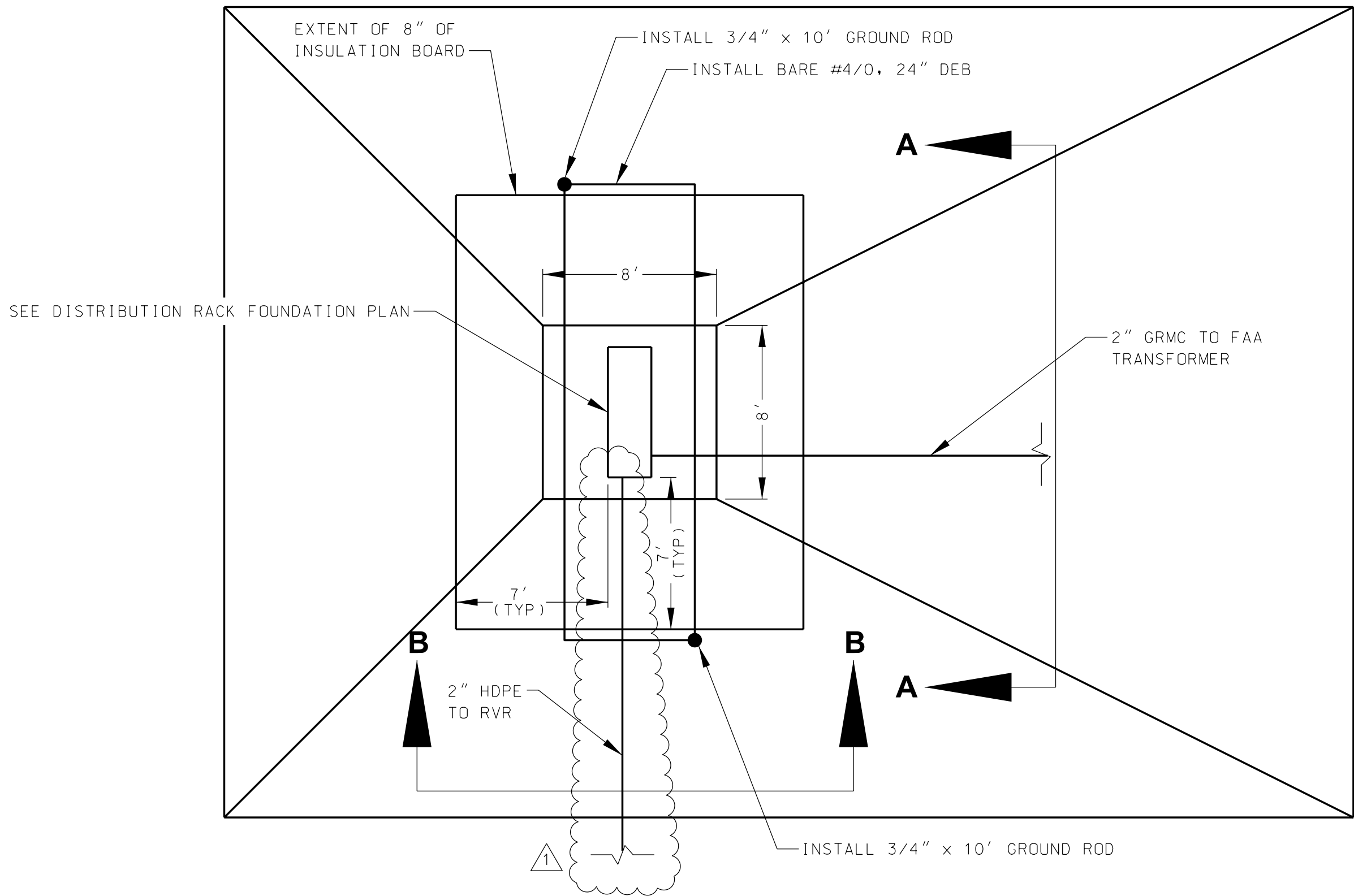
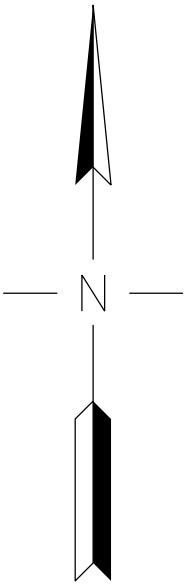
- NOTES:**
1. ALL LAND ON SHEET IS AIRPORT PROPERTY.
  2. ALL CONDUCTORS SHALL BE XHHW.
  3. UNDERGROUND CONDUITS SHALL BE INSTALLED SO THAT NO WATER CAN BE TRAPPED IN THE CONDUIT (WATER MUST BE ABLE TO DRAIN OUT OF ONE END).
  4. EACH CABLE SHALL BE TAGGED IN EVERY PULLBOX AND VAULT AT LEAST TWICE, ONCE AT THE ENTRANCE AND ONCE AT THE EXIT. TAG CABLES IN ACCORDANCE WITH FAA-C-1391B, 3.5.1. POWER SHALL BE TAGGED: RVR-P, CONTROL SHALL BE TAGGED: RVR-C.
  5. NO SPLICES EXCEPT WHERE APPROVED BY FAA PROJECT ENGINEER. ALL SPLICES SHALL BE INSULATED TO A LEVEL EQUAL TO THAT OF THE FACTORY INSULATED CONDUCTORS. SPLICE ONLY IN PULLBOXES AND VAULTS. COMPRESSION CONNECTORS SHALL BE USED TO SPLICE CONDUCTORS #8 AND LARGER.
  6. SEE TRENCH AND PULLBOX DETAILS ON BRW-D-RVR-C003 AND THIS SHEET.
  7. GRMC SHALL BE FIELD WRAPPED WITH 3M SCOTCHCRAP 50, OR EQUIVALENT, WITH 50% OVERLAP

1 CHANGED SPACING OF PULLBOXES IN RUNWAY SAFETY AREA.  
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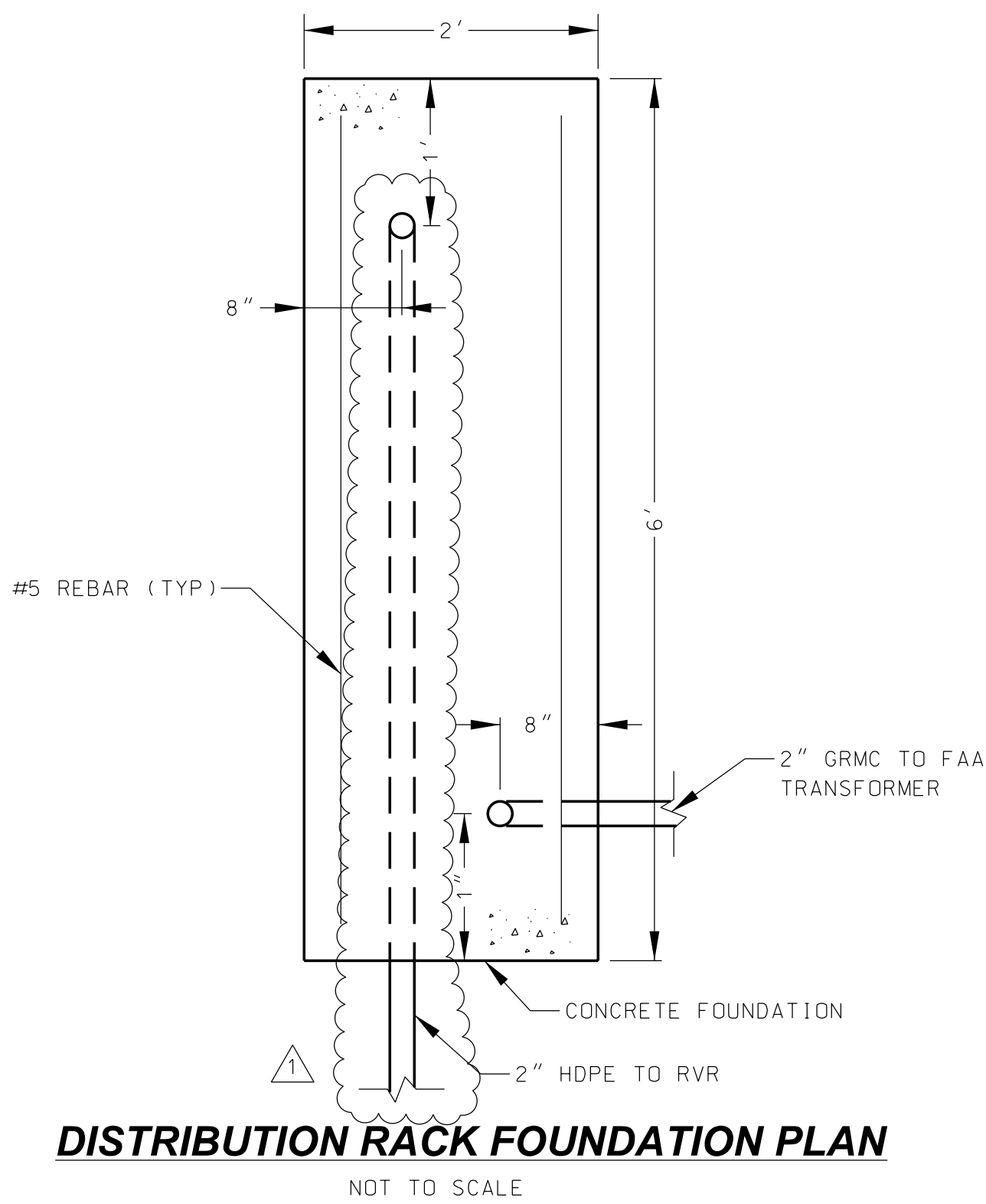
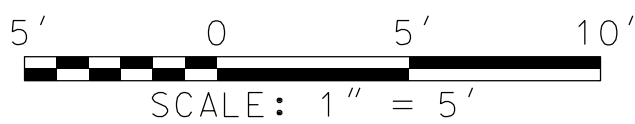
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DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION							
ATO - TECHNICAL OPERATIONS				WESTERN SERVICE AREA			
RWY 7 ROLLOUT RVR PHASE I UTILITY TRENCH PLAN							
BARROW		WILEY POST/WILL ROGERS AIRPORT				ALASKA	
REVIEWED BY		SUBMITTED BY		APPROVED BY			
		PROJECT ENGINEER: JEREMY COOK		MGR NAVAIDS ENGR CENTER - ANCHORAGE			
		DESIGNED		ISSUED BY		DATE	3/20/2012
		DRAWN		ENGINEERING SERVICES		JCN	AL9700269
		CHECKED		NAVAIDS		DRAWING NO	
				BRW-D-RVR-C002		REV	

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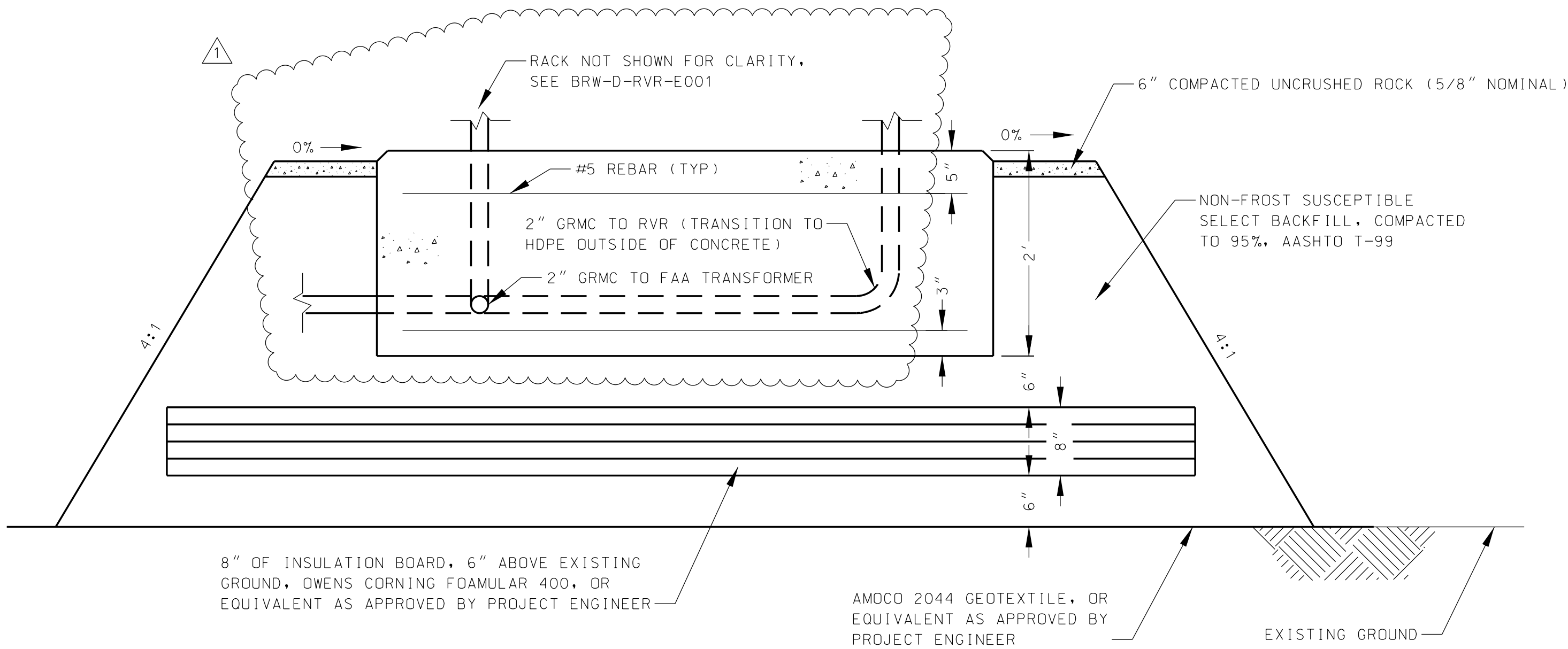




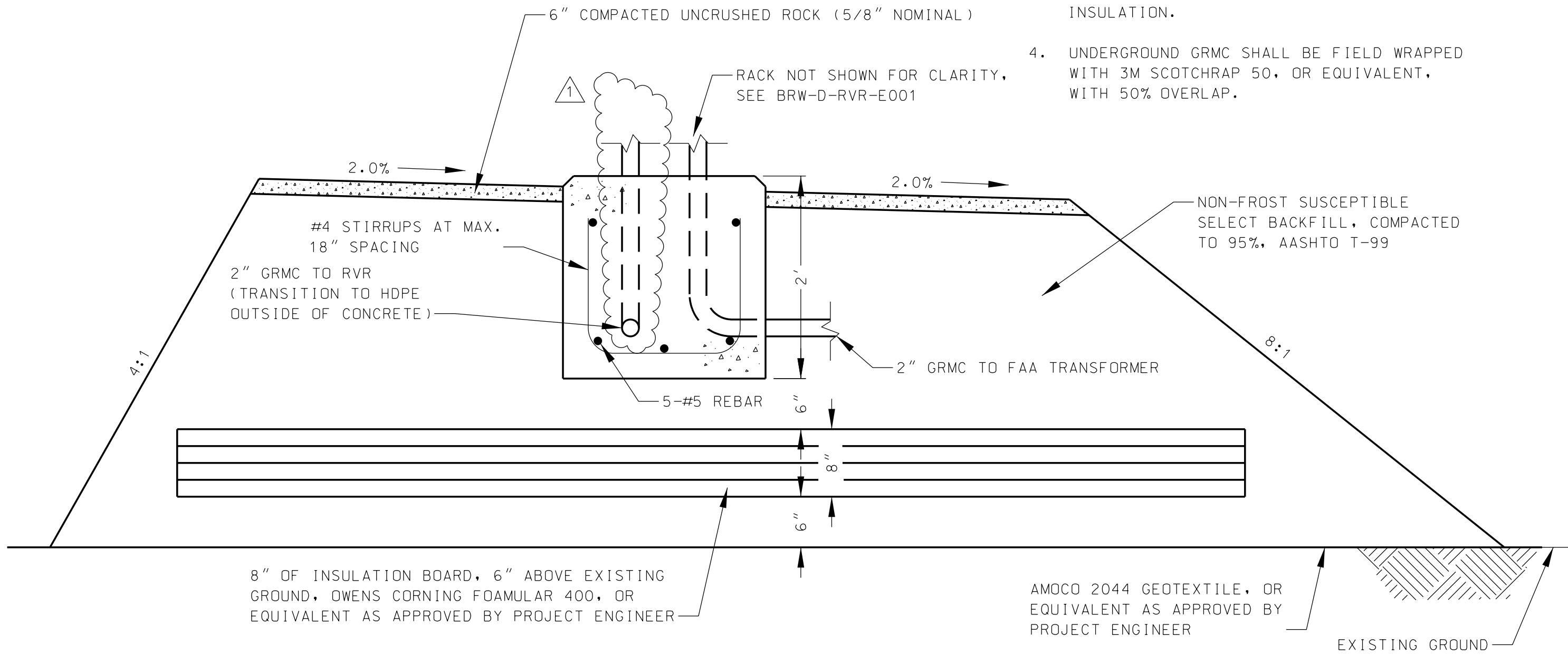
**DISTRIBUTION RACK PAD PLAN**  
SCALE: 1" = 5'



**DISTRIBUTION RACK FOUNDATION PLAN**  
NOT TO SCALE



**DISTRIBUTION RACK FOUNDATION, SECTION A-A**  
NOT TO SCALE



**DISTRIBUTION RACK FOUNDATION, SECTION B-B**  
NOT TO SCALE

**NOTES:**

1. ALL HARDWARE SHALL BE HOT-DIP GALVANIZED.
2. ALL REBAR SHALL HAVE 3 INCHES OF COVER.
3. ENSURE GROUND RODS DO NOT PENETRATE INSULATION.
4. UNDERGROUND GRMC SHALL BE FIELD WRAPPED WITH 3M SCOTCHRAP 50, OR EQUIVALENT, WITH 50% OVERLAP.

1 CHANGED ROUTING OF CONDUIT TO RVR.  
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	PROJECT ENGINEER: JEREMY COOK		MGR NAVAIDS ENGR CENTER - ANCHORAGE		
	DESIGNED	ISSUED BY	DATE 3/20/2012	JCN	AL9700269
	DRAWN	ENGINEERING SERVICES NAVAIDS		DRAWING NO	BRW-D-RVR-C006
	CHECKED			REV	

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7

6

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4

3

2

1

H

G

F

E

D

C

B

A

THOMPSON #166 COPPER SUPPORT LOOP  
TO SECURE #28R TO TOP HORIZONTAL  
MEMBER (2' MAX. SPACING) (TYP)

EMT BOX CONNECTOR W/  
THREADED PVC CAP (TYP)

THOMPSON #28R DOWN  
CONDUCTOR ATTACHED TO FRAME  
& OVER TOP CROSS STRUT

4.5'  
(6' UNISTRUT)

THOMPSON #660 BT AIR TERMINAL (1/2" x 36")  
W/ THOMPSON #636 BASE. BASE MOUNTED USING  
CENTER HOLE AND ONE SIDE HOLE.

HOT DIPPED GALVANIZED P1000 T (SLOTTED)  
UNISTRUT ON EMT (BOTH SIDES). UNISTRUT  
LAID OUT SO ENCLOSURES FIT PROPERLY.  
UNISTRUT ATTACHED TO EMT W/ STAINLESS  
STEEL U-BOLTS. ENCLOSURES ATTACHED TO  
UNISTRUT WITH 1/4" AND 3/8" SPRING CHANNEL  
NUTS. (TYP)

UNISTRUT VINYL CAP (TYP)

100A  
DS  
240V

SPD

7.5 KVA  
STEP-UP  
XFMR

THOMPSON #804 U-BOLT BONDING CLAMP  
TO SECURE #28R TO EMT LEGS (TYP)

EXOTHERMICALLY WELD #28R TO #4/O PRIOR  
TO ENTERING GROUND (TYP)

CROUSE-HINDS 25684-1 GALVANIZED FLOOR  
FLANGE, COMPRESSION COUPLING & 2" EMT  
(3 PLACES). FLOOR FLANGE MOUNTED TO FOUNDATION  
WITH 1/2" X 3 3/4" STAINLESS STEEL WEDGE ANCHORS  
(RED HEAD WW-1236 OR EQUAL).

2" GRMC TO FAA TRANSFORMER  
2" GRMC TO RVR (TRANSITION  
TO HDPE OUTSIDE OF CONCRETE)

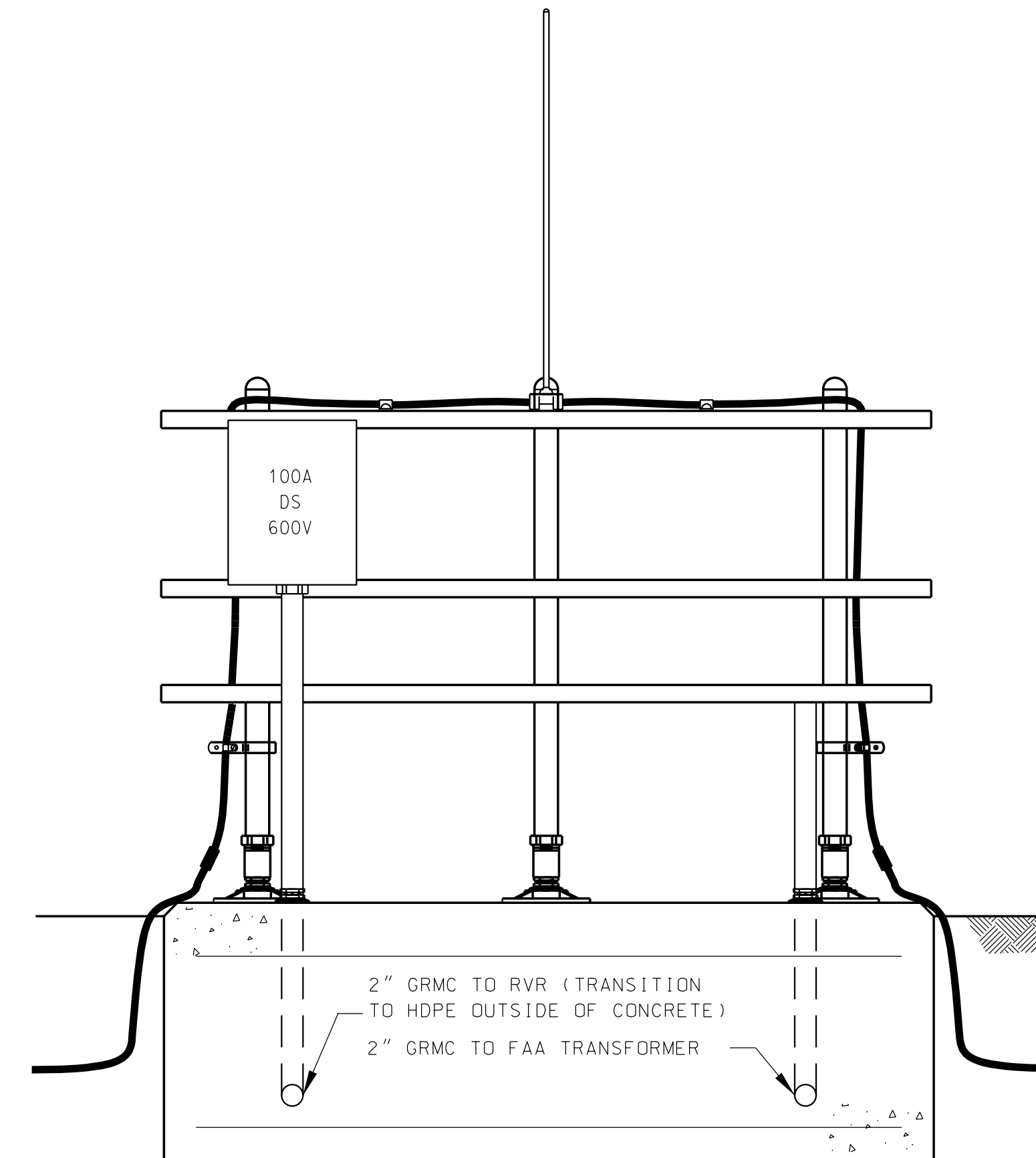
EXOTHERMICALLY WELD #4/O  
TO GROUND ROD (TYP)

CONCRETE FOUNDATION  
SEE BRW-D-RVR-C006

**DISTRIBUTION RACK, SECTION A-A**  
NOT TO SCALE

**NOTES:**

1. ALL HARDWARE SHALL BE HOT-DIP GALVANIZED.
2. UNDERGROUND GRMC SHALL BE FIELD WRAPPED WITH 3M SCOTCHRAP 50, OR EQUIVALENT, WITH 50% OVERLAP
3. SEE BRW-D-RVR-E002 FOR ONE-LINE DIAGRAM.



**DISTRIBUTION RACK, OPPOSITE SIDE**  
NOT TO SCALE

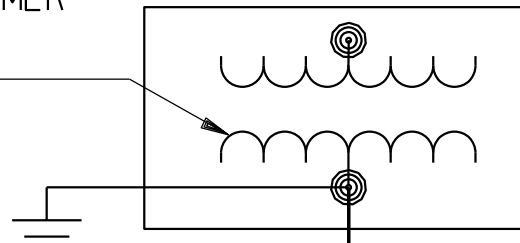
△ REMOVED METERBASE ENCLOSURE.  
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	CHECKED	NAVAIDS	BRW-D-RVR-E001	REV	



EXISTING FAA TRANSFORMER IN ENCLOSURE (NEAR OLD DME BLDG)

EXISTING 5 KVA TRANSFORMER  
PRI = 2.4 KV  
SEC = 120V/240 V



NEW POWER DISTRIBUTION RACK

NEW DISCONNECT SWITCH  
100A 240V 2P NEMA 4X SS  
FUSE = 60A 250 VAC

MAIN GROUNDING JUMPER  
(#2 AWG THWN)

GROUNDING ELECTRODE CONDUCTOR  
(#2 AWG GREEN THWN IN 1" PVC)

NEW RAYVOSS SURGE ARRESTER  
120-2S-M1-3-06-A

NEW STEP UP TRANSFORMER  
7.5 KVA 240V-480 V

NEW DISCONNECT SWITCH  
100A 600V 3P NEMA 4X SS  
FUSE = 20A 600 VAC

P1 3-#2 AWG + 1-#4 AWG GND THWN-2  
IN NEW 2" RSC

P2

P2

P2 3-#2 + 1-#4 GND THWN-2  
IN NEW 1-1/4" RSC

P3 2-#2 AWG + 1-#4 AWG GND THWN-2  
IN NEW 2" HDPE OR GRMC AS SPECIFIED  
(L ± 2,100 FEET POWER DUCT)

PHASE 1  
(THIS PROJECT)

PHASE 2  
(TO BE COMPLETED BY OTHERS)

NEW RVR RO POWER RACK

NEW DISCONNECT SWITCH  
100A 600V 3P NEMA 4X SS  
FUSE = 20A 600 VAC

NEW STEP DOWN TRANSFORMER  
7.5 KVA 480V-120/240V  
MULTI STEPS CHANGER

GROUNDING ELECTRODE CONDUCTOR  
(#2 AWG GREEN THWN IN 1" PVC)

NEW 100A 1PH-3W PANEL  
40A MAIN CB  
ENCL = NEMA 4X SS

WIRING PER MANUFACTURER  
RECOMMENDATION  
IN 1" RSC

LPC 20206-7

P4 2-#4 AWG + 1-#4 AWG GND THWN-2  
IN NEW 1" RSC

P5 3-#4 AWG + 1-#4 AWG GND THWN-2  
IN NEW 1" RSC

P6 3-#10 AWG THWN-2  
IN 3/4" RSC

P7 3-#12 AWG THWN-2  
IN 3/4" RSC

ONE-LINE DIAGRAM

SCALE: NTS

NOTES: SEE DRAWING BRW-D-RVR-E001 FOR DISTRIBUTION RACK LAYOUT DETAILS.

GENERAL NOTES:

- ALL ELECTRICAL INSTALLATION SHALL COMPLY WITH FAA-STD-1217f AND CURRENT NEC CODE.
- ALL GROUNDING AND BONDING INSTALLATION SHALL COMPLY WITH FAA-STD-19e.
- PROVIDE GROUNDING BUSHING TO BOND A CONDUIT TO AN ENCLOSURE AT A DISCONNECT SWITCH, PANEL, SPD.
- CONDUCTOR FOR A TVSS SHALL BE TERMINATED IN DOUBLE BARREL LUGS ON LOAD SIDE OF A DISCONNECT SWITCH..
- WIRE SIZE OF SPD SHALL BE \*2. AND LENGTH FROM THE SPD TO AN OVER CURRENT PROTECTION SHALL BE LESS THAN 12 INCHES.
- WIRING METHOD (SEE FAA-STD-1217f, SECTION 4.6 FOR DETAILS):
  - MINIMUM SIZE ELECTRICAL CIRCUIT SHALL BE \*12 AWG THWN/THWN-2/XHHW 600 VAC.
  - EACH OVERCURRENT DEVICE SHALL HAVE ITS OWN NEUTRAL, AND EQUIPMENT GROUNDING CONDUCTOR.
  - CONDUCTOR \*10 AWG OR SMALLER SHALL BE SOLID.
- CONDUIT (SEE FAA-STD-1217f, SECTION 4.6.3 FOR DETAILS):
  - MINIMUM SIZE OF AN ELECTRICAL CONDUIT SHALL BE 3/4.
  - EMT SHALL BE USED IN DRY LOCATION OR INDOORS. FITTING USED WITH EMT SHALL BE STANDARD COMPRESSION TYPE FITTINGS.
  - ZINC COATED RIGID STEEL CONDUIT SHALL BE UNDERGROUND SERVICE CIRCUIT OR OUTDOORS.
  - WHERE FLEX METAL CONDUIT IS USED, PROVIDE GROUNDING BUSHING AND BONDING \*6 GROUND WIRE AT EACH END OF A FLEXIBLE METAL CONDUIT.
- COLOR CODE (SEE FAA-STD-1217f, SECTION 4.6.5.2.2 FOR DETAILS).
- EQUIPMENT NAME PLATE (SEE FAA-STD-1217f, SECTION 4.16 FOR REFERENCES).
  - PROVIDE NAME PLATE FOR PANEL, DISCONNECT SWITCH, ENCLOSURE, SPD. CONTRACTOR SHALL REQUEST RE/SSC TO PROVIDE DETAILS OF NAMEPLATE.
  - NAME PLATE SHALL BE 2"x4" PLASTIC WITH BLACK COLOR BACKGROUND AND MINIMUM 3/8" WHITE CHARACTERS.
- PROVIDE NEW POWER RACK, NEW ELECTRICAL EQUIPMENT PER DRAWINGS & PROJECT SPECIFICATIONS. FRANGIBLE MOUNTING ANCHOR BOLTS FOR THE POWER RACK IS NOT REQUIRED IF THE RACK IS LOCATED OUTSIDE OF THE RSA.
- LABEL NAME OF EACH CIRCUIT AT A DISCONNECT SWITCH, A PANEL, AN OUTLET, AND A SWITCH.

NEW EQUIPMENT SCHEDULE FOR POWER RACK

NO.	DESCRIPTION ELECTRICAL EQUIPMENT	LOCATION	MODEL # (SQUARE D OR EQUAL)	MATERIALS TO BE PROVIDED BY	REMARK
E1	NOT USED				
E2	100A 240V SERVICE DISCONNECT SWITCH	POWER RACK	H222DS NEMA 4X	CONTRACTOR	HEAVY DUTY NEMA 4X STAINLESS STEEL
E3	RAYVOSS SURGE ARRESTER	POWER RACK	120-2S-M1-06-A	CONTRACTOR	CONNECT IN SERIES
E4	7.5 KVA 1-PHASE STEP UP TRANSFORMER	POWER RACK	PRI = 240V SEC = 480V 1PHASE	CONTRACTOR	STAINLESS STEEL ENCLOSURE TRANSFORMER
E5	100A 600V 3P DISCONNECT SWITCH	POWER RACK	H363DS	CONTRACTOR	HEAVY DUTY NEMA 4X STAINLESS STEEL
E6	100A 600V 3P DISCONNECT SWITCH	RVR RO RACK	H363DS	PHASE 2	HEAVY DUTY NEMA 4X STAINLESS STEEL
E7	7.5 KVA 1-PH STEP DOWN TRANSFORMER	RVR RO RACK	240V - 480V 1PHASE	PHASE 2	STAINLESS STEEL ENCLOSURE TRANSFORMER WITH MULTI TAPS CHANGER
E8	100A 240V 1PH-3W PANEL	RVR RO RACK	NQ PANEL	PHASE 2	ENCLOSURE = NEMA 4X STAINLESS STEEL, CIRCUIT BREAKERS QOB, BUS BARS = COPPER
E9	LPC SURGE ARRESTER	RVR RO RACK	LPC 20206-7	PHASE 2	STAINLESS STEEL NEMA 4X

NEW ELECTRICAL DUCT SCHEDULE

	DESCRIPTION	FROM	TO	TO BE PROVIDED BY	REMARK
P1	240V POWER FEEDER 1 PH - 3 WIRE	TRANSFORMER	KWH METER	CONTRACTOR	INSTALL NEW THWN-2/XHHW CONDUCTORS IN NEW 2" GRMC CONDUITS
P2	240V POWER FEEDER 1 PH - 3 WIRE	KWH METER	LINE SIDE DISC SW 100A 600V	CONTRACTOR	INSTALL NEW THWN-2/XHHW CONDUCTORS IN NEW 1-1/4" GRMC CONDUITS
P3	480V POWER FEEDER 1 PH - 2 WIRE	LOAD SIDE SW 100A 600V	LINE SIDE DISC SW 100A 600V	CONTRACTOR	INSTALL NEW THWN-2/XHHW CONDUCTORS IN NEW 2" HDPE OR GRMC CONDUIT, AS SPECIFIED
P4	480V POWER FEEDER 1 PH - 2 WIRE	LOAD SIDE SW 100A 600V	PRIMARY SIDE 7.5 KVA TRANSFORMER	PHASE 2	INSTALL NEW THWN-2/XHHW CONDUCTORS IN NEW 1" GRMC CONDUITS
P5	240V POWER FEEDER 1 PH - 3 WIRE	SEC 7.5 KVA TRANSFORMER	LINE SIDE 100A 240V PANEL	PHASE 2	INSTALL NEW THWN-2/XHHW CONDUCTORS IN NEW 1" GRMC CONDUITS
P6	120V RVR BRANCH CIRCUIT	PANEL 100A 240V	VS-SIE ENCLOSURE	PHASE 2	INSTALL NEW THWN-2/XHHW CONDUCTORS IN NEW 3/4" GRMC CONDUITS
P7	120V BRANCH CIRCUITS	PANEL 100A 240V	OBSTRUCTION LIGHT & GFI OUTLET	PHASE 2	INSTALL NEW THWN-2/XHHW CONDUCTORS IN NEW 3/4" GRMC CONDUITS

ABBREVIATIONS: RVR: RUNWAY VISUAL RANGE; U/G: UNDERGROUND; RECPT: RECEPTACLE; RSA: RUNWAY SAFETY AREA; OBS LIGHT: OBSTRUCTION LIGHT; DISC SW: DISCONNECT SWITCH; DIST: DISTRIBUTION

NEW PANEL RVR RO SCHEDULE

MANUFACTURER SQUARE D		MODEL NUMBER NQ PANEL NEMA 4X 15 CKTS		
CIRCUIT BREAKER TYPE QOB		SERIES		
PHASE: 1 PHASE		NUMBER OF WIRES: 3 WIRE		
MAIN BREAKER AMPS: 40A 10 KA (AIC)		VOLTS 120/240V		
		AMPS 100A		
		SURFACE MOUNT ENCLOSURE		
SERVICE	AMPS	A B	AMPS	SERVICE
VS SIE	25A	1 2	15A	OBSTRUCTION LIGHTS
GFI OUTLETS	20A	3 4	20A	LPC-11755
SPARE	20A	5 6		
SPARE	20A	7 8	30A	SPARE
SPARE	15A	9 10		
SPACE		11 12	15A	SPARE
SPACE		13 14		
		15		
MAIN BREAKER	40A			

COLOR CODE (WIRING):  
L1 (HOT): BLACK; L2 (HOT): RED  
NEUTRAL: WHITE;  
EQUIPMENT GROUNDING: GREEN

REMOVED METERBASE ENCLOSURE.  
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